

TOP SECRET

PRIORITY

TOP SECRET 010032Z

07Z

25X1

CORONA

SUBJ: MISSION 1044 PHOTOGRAPHIC EVALUATION INTERIM REPORT (PEIR).

REF:

25X1

OUT63712

1. NUMERICAL SUMMARY

MSN NO AND DATES

1044-1, 2-8 NOV 67

1044-2, 8-11 NOV 67

LAUNCH DATE AND TIME:

2 NOV 1967/2131Z

VEHICLE NUMBER:

1639

CAMERA SYSTEM:

J-41

PAN CAMERA NO:

FORWARD-LOOKING, 202

AFT-LOOKING, 203

MSN 1044-1 S/I NO:

D99/122/120

MSN 1044-2 S/I NO:

D104/132/131

RECOVERY REVS:

MSN 1044-1, 87

MSN 1044-2, 140

Declassification Review by
NGA/DoD

2. CAMERA SETTINGS

FWD-LOOKING

0.225 INCH SLIT, WRATTEN 23A

AFT-LOOKING

0.175 INCH SLIT, WRATTEN 21

3. PERFORMANCE SUMMARY

A MINIMUM OF PAYLOAD SYSTEM ANOMALIES OCCURRED DURING THIS MISSION THUS PROVIDING ONE OF THE MOST TROUBLE-FREE FLIGHTS TO DATE. THE IMAGE SHARPNESS ATTAINED IS EQUAL TO ANY PREVIOUS CORONA J-1 PHOTOGRAPHY, PERMITTING MOST IMAGERY TO BE VIEWED AT (60X) MAGNIFICATION. THE DUAL GAMMA (HUMP-BACK) PROCESSING USED ON SEVERAL PARTS OF THIS MISSION PRODUCED EXCELLENT PHOTOGRAPHY. THE PI'S REPORTED THAT THE QUALITY OF THE MISSION IS GENERALLY GOOD WHERE NOT DEGRADED BY ATMOSPHERIC ATTENUATION; HOWEVER, THERE IS A PREDOMINANCE OF CLOUD COVER OVER THE HIGHEST PRIORITY TARGETS.

4. ANOMALIES

THE ANOMALIES REPORTED WERE GENERALLY OF A CHARACTERISTIC NATURE, WITH EMULSION BUILD-UP BEING THE MOST NOTICEABLE.

A. RAGGED BINARY EDGE

ANOMALY: A RAGGED EDGE ON THE BINARY SIDE OF THE FORMAT WAS OBSERVED TO A MINOR EXTENT IN 1044-1 IN BOTH THE FWD AND AFT INSTRUMENTS. THE MAGNITUDE OF THIS ANOMALY INCREASED IN 1044-2. INFORMATION CONTENT OF THE FILM DID NOT APPEAR TO BE LOST BECAUSE OF THIS ANOMALY.

CAUSE: THE RAGGED FORMAT EDGE IS CAUSED BY A CLUMPING OF SMALL PARTICLES OF EMULSION ALONG THE RAIL EDGE. THIS PARTICLE CLUMPING EXTENDS INTO THE FORMAT, AND ACTS ESSENTIALLY AS A MASK, CAUSING THE FORMAT EDGE DEFINED BY THE FILM SUPPORT RAIL TO APPEAR RAGGED.

ACTION: NONE.

B. H. O. VEILING

ANOMALY: SLIGHT VEILING OF THE AFT STARBOARD HORIZON, BEGINS ON PASS D09, AND CLEARS BY PASS D135. THE HORIZON IS STILL WELL DEFINED, AND THE ANOMALY DOES NOT PRECLUDE SATISFACTORY DATA REDUCTION.

CAUSE: THIS PHENOMENON HAS BEEN OBSERVED ON SEVERAL PREVIOUS SYSTEMS. INVESTIGATION HAS FAILED TO ESTABLISH A DEFINITE CAUSE.

ACTION: NO NEW ACTION AT THIS TIME.

C. MISSING BINARY BLOCKS

ANOMALY: BINARY DATA BLOCKS WERE MISSING IN SIX FRAMES

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Excluded from automatic
downgrading
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THROUGH THE MISSION. FOUR OCCASIONS WERE ON THE FORWARD CAMERA, AND TWO ON THE AFT. IN ALL INSTANCES THE INDEX LIGHTS AND SERIAL NUMBER WERE LIT.

CAUSE: RANDOM OCCURRENCE OF MISSING DATA BLOCKS WAS OBSERVED IN PRE-FLIGHT ALTITUDE TESTING. THE CONDITION WAS NOT CONSIDERED DETRIMENTAL, AND CORRECTIVE ACTION WAS WAIVED.

ACTION: NONE.

D. HAIR LINE EMULSION CRACKS

ANOMALY: FINE HAIR LINE EMULSION CRACKS ARE EXHIBITED ALONG BOTH EDGES OF THE FORWARD CAMERA RECORD AT THE BEGINNING OF THE MISSION, GRADUALLY DIMINISHING UNTIL COMPLETELY ABSENT AT PASS D37.

THESE CRACKS ARE EVIDENT AS PLUS DENSITY LINES IN THE MARGIN AREA. THEY NEITHER INTRUDE INTO THE FORMAT AREA NOR DO THEY NORMALLY EXTEND TO THE EDGE OF THE FILM.

CAUSE: UNKNOWN. ORIGINAL NEGATIVES OF THE MATERIAL AFFECTED WERE NOT AVAILABLE FOR THIS EVALUATION.

ACTION: NONE

D. BANDING

ANOMALY: INTERMITTENT BANDS OF SMEARING NEAR THE TAKE-UP END OF THE FORMAT.

CAUSE: THE BANDS OF SMEARING AT THE TAKE-UP END OF THE FORMAT WERE CAUSED BY FILM FLUTTER DISTURBANCES AS THE SCAN HEAD ENTERS THE PHOTOGRAPHIC FORMAT AREA.

ACTION: NONE. THIS ANOMALY IS CHARACTERISTIC OF INSTRUMENT OPERATION.

5. DUAL GAMMA PROCESSING

REFS C AND D AUTHORIZED [] TO PROCESS FOUR LENGTHS, EACH APPROXIMATELY 2,000 FEET, OF BOTH THE 1044-1 AND 1044-2 PAYLOADS USING AN EXPERIMENTAL DUAL GAMMA PROCESS. PRELIMINARY EVALUATIONS THAT COMPARE THESE MATERIALS TO CONVENTIONALLY PROCESSED PORTIONS OF THE MISSION ARE RESTRICTED TO THE EFFORTS OF THE PET TEAM AND LIMITED INPUTS FROM [] COLLECTIVELY THESE INPUTS INDICATE:

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A. A HIGH PERCENTAGE OF THE IMAGERY WAS RECORDED AT DENSITIES BELOW 1.2, OR ON THOSE PORTIONS OF THE DUAL GAMMA AND CONVENTIONAL (FULL DEVELOPMENT) CURVES THAT ARE ESSENTIALLY IDENTICAL. THEREFORE, DIFFERENCES IN QUALITY AT THESE DENSITIES ARE SMALL AND SUBTLE AND PROBABLY A RESULT OF VARIABLES OTHER THAN THE MODE OF PROCESSING.

B. IN PARTICULAR INSTANCES WHERE HIGH REFLECTANCE SUBJECTS WERE RECORDED, THERE IS GENERALLY A PREFERENCE FOR THE DUAL GAMMA PROCESSED MATERIAL.

C. AS A GENERAL CONCLUSION, THE PET BELIEVES THAT DUAL GAMMA PROCESSING WILL PROVIDE BETTER INFORMATION CONTENT OVERALL THAN THE TRENTON PROCESSED FILM AND RECOMMENDS, SUBJECT TO [] PI EVALUATION, THAT [] HAVE THE CAPABILITY AS SOON AS PRACTICAL TO PROCESS FULL (16,000 FEET) PAYLOADS.

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ACTION: [] CONDUCT A SUBJECTIVE PI EVALUATION OF THE DUAL GAMMA PROCESSED FILM (AND/OR DUPLICATE POSITIVE COPIES) VERSUS THE TRENTON PROCESSED FILM AND REPORT RESULTS TO THE ADDRESSEES OF THIS MESSAGE BY 22 DECEMBER (MONITOR []). IF THE RESULTS OF THIS EVALUATION ARE FAVORABLE, [] SHOULD BE AUTHORIZED TO PROCEED TO IMPLEMENT DUAL GAMMA PROCESSING FOR FULL CORONA PAYLOADS. []

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6. COMMENTS

A NEW CRITERIA WAS USED FOR SETTING THE PEAK CAMERA FOCUS, THIS CHANGE AMOUNTED TO A FILM PLANE SHIFT OF 0.0015 INCHES FROM THE PREVIOUS PEAK FOCUS SETTINGS. ALTHOUGH NOT CONCLUSIVE, IT APPEARS THAT THIS FOCAL SHIFT IMPROVED THE PHOTOGRAPHY. THIS WAS EVIDENCED BY THE QUALITY OF THE IMAGERY WHEN VIEWED AT 60X MAGNIFICATION. THE PERMANENT RESOLUTION TARGETS ACQUIRED AT EDWARDS AND HOLLOMAN AIR FORCE BASES PRODUCED A GROUND RESOLUTION OF 8 TO 9 FEET IN AND ACROSS THE FLIGHT LINE.

T O P S E C R E T

END OF MESSAGE

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